Using Gainful Employment Metrics to Encourage Completion, Justify Cost, Judge Program Effectiveness, and to Encourage Institutions to Serve Low Income Young Adults

The core employability (gainful employment) metrics that we suggest to build a system for evaluating program effectiveness include:

(1) Labor market demand by program of study[1]
(2) Placement in field[2]
(3) Earnings of students relative to cost and debt load by program[3]
(4) Employment stability by programs of study[4]
(5) Earnings of students by completion status[5]
(6) The relative value of different course clusters, certificates, and degrees[6]
(7) Student's work status while enrolled.

The additional metrics needed for a more proactive system are:

(8) Completion rates in program of study by test score[7]
(9) Expected-versus-actual performance in school based on student characteristics (SES, placement test scores, and high school GPA)

Information systems based on public wage record data and the links between them can only be found in the public domain. These public systems have decisive advantages over employer surveys. Although employer surveys can be useful, response rates are often poor. In addition, they are costly and the quality of information produced is notoriously dubious. Student surveys can also be useful, but they share many of the same drawbacks as employer surveys. These more qualitative evidence are useful as a supplement to solid, baseline quantitative data provided by state data systems.

Labor market outcomes, as measured by public wage records tied to transcript data, are increasingly seen as essential for evaluating postsecondary success because:

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[1] See Appendix A, Section 1.
[2] See Appendix A, Section 2. Employment regulations vary by state, but in many cases, state-licensure and/or certification is a barrier to employment entry. In these cases, the number of successful recipients of the appropriate license or certification could be an additional evaluation metric.
[3] See Appendix A, Section 3.
[4] See Appendix A, Section 4.
[5] See Appendix A, Section 5.
[6] See Appendix A, Section 6.
[7] See Appendix B.

(1) Attainment of some kind of postsecondary education and training has become critical for earning a family-sustaining income;

(2) Career goals are the single most powerful motivating force for encouraging enrollment, persistence and completion in postsecondary courses and programs, especially in community colleges. The vast majority of community college students (84%) are already working, and 43% are working full time;

(3) Gainful employment is becoming a primary measure of postsecondary efficiency in allocation of resources, as evidenced by the Department of Education's forthcoming rule on gainful employment.

Gainful employment measures can improve the metrics for cost, completion, and learning. For example, completion alone is a poor indicator of success. Simply maximizing completion rates can be counterproductive for evaluating program effectiveness. Completion metrics can be maximized in counterproductive ways if they encourage institutions to shift enrollments to the least challenging programs and to serve the most-advantaged students. Nursing programs are more difficult to complete than cosmetology programs, but nursing graduates are more employable and more highly paid than cosmetology graduates—demonstrating that some completions are more valuable than others. Gainful employment metrics can also improve cost metrics by evaluating program cost relative to earnings returns. Cosmetology programs are also cheaper than nursing programs, but the earnings returns are much higher in the latter than in the former. Finally, labor market outcomes are a good proxy for learning. The value of postsecondary programs is ultimately determined by the access they provide to learning and work experience on the job. In programs tied to technical skills and careers, the employability and earnings returns of a graduate is a demonstration of the knowledge and skills a graduate obtained in a program.

Further, as a performance measure, gainful employment, *along with all the other metrics*—learning, completion, and cost—needs to take student readiness and socio-economic characteristics into account to avoid discrimination against the least-advantaged students. Absent such weights, cost, completion and learning metrics are likely to encourage institutions to shy away from serving Low Income Young Adults (LIYAs) because poor performance on the part of these students will affect institutional rankings.

The most effective metrics for judging institutions and advising students need to be weighted by student readiness measures such as placement tests and student SES characteristics. These measures would lead to more focused student counseling and would improve evaluation of program effectiveness in terms of expected-versus-actual outcomes. Low-income and other non-traditional students have much lower persistence and graduation rates than their more advantaged peers. Their success rates in the labor markets are also lower. Not taking this into account will lead institutions to shut out these students to increase their performance and avoid sanctions.

A system that does not incorporate an expected-versus-actual component would be counterproductive because it would only measure a program or institution's effectiveness and efficiency against an *absolute* standard—making programs that do well, given their student populations, look bad when in fact they are serving their students well. It is important to compare actual performance to how a program can be expected to perform, given the test scores and demographic characteristics of its students. Program Z may be poorly serving students with high test scores and high household incomes,

compared with what would be expected given their student population. In contrast, Program Y may look bad in sheer numbers, while in fact, given what would be expected of its student population of low-income, low-test scorers, it is performing relatively well.

A truly innovative system that used expected-versus-actual would not only to measure yesterday's successes and failures, but allow the information about last year's students to feed into program design, counseling systems, and program placement to maximize current and future student success. Moreover, controlling for student readiness in evaluating program success weights outcomes by student characteristics encouraging institutions to serve the least-advantaged without being penalized for it.

Any individual college in a state where wage records are tied to postsecondary transcript data should be able to compile these metrics and integrate them into an effective evaluation and counseling system (see Appendix C1 for where they are available). In addition, existing interstate agreements allow institutions to track wage records across state lines. These nine metrics are the core of any effective performance evaluation system. The more difficult question is how to get the states to be more proactive in the use of the data.

Once in place, additional data could be taken into account to build even stronger systems. See Appendix A for more details on the metrics and Appendix C for a survey of existing state level data systems.

Appendices:

Using Gainful Employment Metrics to Encourage Completion, Justify Cost, Judge Program Effectiveness, and Encourage Institutions to Serve Low Income Young Adults

Appendix A: Details on Core Metrics

(1)   *Labor Market Demand by Program of Study*[1]

Community colleges in the United States have service areas that are commonly assigned by the local labor market area and/or tax base. Thus, evaluating job prospects by programs of study is an important metric that can serve to evaluate a school's success in serving both the student and the community.

These data will be used to show existing job openings as well as to build projections that can measure the relationship between enrollment and forecasted openings. In combination, by illuminating existing demand and projecting trend, these data can be used to evaluate whether an existing or potential program aligns with local labor market demand. Local labor market demand metrics can be obtained using wage record data, Occupational Employment Survey (OES) data, Job Openings Layoff and Turnover Survey (JOLTS) data, real time job postings data, census data, and employment projections. To obtain occupational projections for the appropriate area, several data sources would need to be combined:

- Wage-record data would provide local employment trends, which would be the core foundation for local projections;
- States' 2-year occupational projections data that can be used to help calibrate the local projections to state employment forecasts, and
- Real-time job postings data would generate the forward edge of these local occupational projections by providing data on the present and projected flow of job openings by occupation.

Number of graduates by program

Taken in combination with the above metrics, number of graduates and forecasted number of graduates would be the supply-side evaluation metric. In other words, the complete alignment metric would evaluate whether the number of current graduates aligns with current job openings and whether projected graduates align with expected job openings.

(2)   *Placement in field*

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[1] In order to do this, state wage record data needs to be supplemented by data from the Federal Employment Data Exchange System. In order to track employment and wages in other states, individual states would have to use Workforce Record Interchange System. Finally, tracking the self-employed, who account for about 10% of the nation's workers, also poses a challenge, but one that can be overcome by accessing the records of the Social Security Administration. It is especially important to track the self-employed because they often make more in technical trades if they establish their own businesses.

It is generally difficult to move from course catalogues to occupation or placement-in-field because:

1. Major field of study does not always map neatly to occupations;
2. Industry-based data is the basis of state labor market information (LMI) systems; occupational data or job-title information is much less common.

Instructional programs and major field of study fall into several categories: (1) those that map very nicely (e.g. engineering); (2) programs that map broadly into job clusters that share some common skill foundation and differ slightly on field specialization commonly honed on the job and not in the class room (e.g. computer science); and (3) those that don't have clear relationships (e.g. a sociology major becoming a program evaluator). Operationally, this means that evaluation of particular programs will be conducted at the level of aggregation supported by the existing data, augmented by post-education employment, placement, surveys and any additional local level information that can be systematically provided by the institution's career guidance and/or relationships/surveys of local employers.

Absent the ability to reasonably measure placement in field, industry employment information and wage data can be used together to approximate employment in field. In addition, the historic earnings of program graduates versus those of program dropouts by industry can be used to establish the expected wages of a program graduate arguably working in field. Data from the American Community Survey (ACS) can also be used to establish actual occupational earnings by industry. While approximate, similar industry proxies have been tested in Florida and have fared reasonably against survey-based placement in field measures.

In ideal circumstances, state LMI data could develop an industry-based Program/Major Field of Study staffing pattern matrix aimed to parallel the Occupational Staffing Pattern data commonly used to infer occupational employment from industry data. Ultimately, these staffing pattern data could be created in a state with very good true placement data and linked student unit records coupled with wage record data.[2]

Licensure and Certification

Employment regulations vary by state, but in many cases state-licensure and/or certification is a barrier to employment entry. In these cases, the number of successful recipients of the appropriate license or certification could be an additional evaluation metric.

(3) *Earnings of students relative to cost and debt load by program*

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[2] See Friedlander, J. (1993), "Using Wage Record Data to Track the Post-College Employment and Earnings of Community College Students": Santa Barbara City College for a description of a data system that could support this.

Earnings and, especially, earnings-to-debt/cost ratios are critical metrics of program success. Averaged earnings-to-debt ratios give an evaluator the individual cost-benefit measure, while averaged earnings-to-cost ratios give an evaluator a social cost-benefit metric that can be created to allow comparison between for-profit and public institutions, or any institutions were there is a cost differential.

Individual earnings data can be obtained from the state wage record data and will be compared to expected/historic earnings in a given occupation by state or sub-state region using the American Community Survey.[3] Earnings in field will be inferred as discussed above in cases where occupational placement data is absent. Earnings-to-debt ratios will be calculated using financial aid information compared to wage record data at the individual level. In both cases, the average earnings experience of program participants will be calculated and compared against the entry and early career earnings in the state. A successful program would meet or exceed the state average.

(4)   *Employment Stability by programs of study*

Staying with an employer, or at least staying in field, raises the likelihood that the worker benefits from accrued work experience and seniority. Employment stability is also an important metric because stable employment is likely to mean full-year employment – hence larger yearly earnings. While it is not reasonable to expect a program to be fully responsible for employment stability, we assume that employment stability increases with the quality of a program as well as with the successful alignment of a program with local (and projected) employment demand. This metric can be derived solely from the wage-record data and will primarily measure stability with employer. Stability in field will need to be inferred in most cases (see discussion above).

(5)   *Earnings of students by completion status*

Comparison of earnings between program graduates versus dropouts will be valuable data in cases where placement in field and its value need to be inferred (see discussion above), as well as to determine whether completion is necessary for graduates to realize earnings advantages, and how substantial these returns are. Once the return to completion is evaluated, it can be used to motivate students to complete.

(6)   *The relative value of different course clusters, certificates, and degrees*
Wage records can help answer questions about which course clusters pay off, and the difference in value between varying credentials in the same field. The differential effects of course clusters, certificates, and degrees (A.A., A.A.S., and A.S.) could also be determined by matching transcript information to wage records. We want to know the relationships between the completion levels and gainful employment. Is there any earnings differential between course clusters, certificates and degrees within a program of study? The system could determine the exact value of a combination of courses. In other words, does Bob earn more for having taken

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[3] Restricted use data enables sub-state analyses.

course X, or does course X not add on to the value of the degree, in terms of employability? Would Mary be as employable if she obtains a certificate as if she obtained an A.A. in a given program of study?

Appendix B: Weighting program outcomes

Completion rates by programs of study by test score

We strongly believe that performance metrics should be integrated into a feedback process that supports student success and program effectiveness. Left as an *ex post facto* measurement of program effectiveness, any metric is greatly limited in value. In this light, data from placement exams should be used to temper measurement of program performance to control for the readiness level of the incoming student population. Once such a system was in place, program outcomes could be measured relative to ranges of student readiness which then becomes an important tool for student guidance as well as program success.

As a performance metric, program success by levels of student readiness enables an outcome measure that does not penalize a program that serves traditionally hard-to-serve populations. As a guidance tool, informing students of their expected success rate given their level of readiness will help direct students into appropriate programs.

In their current state, placement exams are geared more towards deciding whether students should be required to first take remediation. We suggest that this is can be a waste of educational resources as remediation does not lead to successful completion of post-secondary programs. In the best of worlds, placement exams ought to be more program-oriented with the aim of realistically determining the proper sequence of subject specific courses necessary for completion. In the cases where remediation is needed, courses aimed at getting the entering student up to grade level need be developed in the context of the student's desired program of study.

Expected-versus-actual performance based on student characteristics[4] (family background and test scores)

Educational outcomes systematically differ for reasons other than test-scores, as prior research demonstrates (see Carnevale and Strohl 2010). For example, graduation rates vary widely based on a student's SES –holding test scores constant. Schneider (2010) demonstrates widely varying graduation rates even within identical tiers of post-secondary selectivity. In this light, controlling for observable characteristics of family background, individual performance, and program effectiveness enables both program and individual outcomes to be measured relative to realistic expectations. This comparison of expected-versus-actual outcomes then also serves to define a successful program as a program that meets some average level of expectation and/or exceeds its own level of past (expected) performance.

While measuring post-secondary program success in this fashion is relatively unexplored the extensive work being done with value-added modeling in the K-12 (primarily 3rd-to-8th) system is building an analytic foundation that might well carry over. For instance, school and teacher effectiveness has been defined by an expected year's growth and superior programs, teachers, or institutions are those that exceed expectations, *controlling for the characteristics of the student population.*

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[4] The Free Application for Federal Student Aid (FAFSA) form can provide some core data. Additional data depend on state and institution specific administrative records.

Appendix C1: Background on State P20 Systems

When it comes to data which tracks career returns to postsecondary education, many states have already developed relatively effective data systems. These public systems are the ideal way to measure returns to education, as they are the only way to access official wage records, the most accurate measure of earnings and employment available. In addition, all the states that received ARRA money have committed to the America Competes Act, to have a "connected P20/Workforce" longitudinal data system. The challenge going forward is to sustain momentum in these states in times of faltering budgetary commitment, provide a strong rationale for the continuing existence of these systems, and assist systems to leverage the data.

Twenty-six states currently have longitudinal student unit record (SUR) systems that link K16 (or ideally P20) student data with workforce data.[5] This information is invaluable for measuring student outcomes post-graduation, and includes accurate wages, employment industry, occupation, and hours worked, among other information. Some states also use these systems to gather information on under-served populations and regions. Moreover, this information provides a useful point of comparison across all institutions and states.

We suggest that there are seven states ahead of the curve on this: Florida, Georgia, Kentucky, Nevada, North Carolina, Oregon, and Virginia. These states all have different governance structures for their data systems, but are the most well positioned states to move forward in innovative ways. We selected these states based on a filtering mechanism described below in detail.

A decision on which states to potentially work with could be based on any number of factors, such as the extent to which two-year and proprietary schools are included, or whether the system tracks employment in field. We suggest states based on multiple criteria. We narrowed the choices by (1) selecting only those states that have systems which already connect postsecondary information with workforce information; (2) of those, selecting those which track 2-year, public institutions and are therefore most likely to serve non-traditional students; (3) of these remaining states, select systems which track employment in-field; and (4) of the remaining systems, select those systems that have the most robust data based on the number of data elements present.

After the first level of screening, twenty-six states remain[6]:

Alaska	Missouri	Texas
California	Montana	Utah
Florida	Nevada	Virginia
Georgia	New Mexico	Washington

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[5] Twenty-three states already have these systems; they are in development in three states.
[6] Twenty-eight, if including informal but regular connections between labor market and student data. Connecticut also periodically has its labor department do studies on their university system using wage records. The Connecticut Labor Agency is a designated research arm of the state's education system and therefore is authorized to access the student record data system. In addition, Illinois has also worked with wage records. At the University of Illinois, a research center is in development which will use the workforce and student record data.

Indiana	North Carolina	West Virginia
Kansas	North Dakota	
Kentucky	Ohio	
Maine	Oklahoma	
Maryland	Oregon	
Minnesota	Rhode Island	
Mississippi		

Of these twenty-six states, only two do not track 2-year public institutions: Mississippi and Maine. We removed these states from the list.

Among these states, four are highly centralized systems by virtue of their governance, especially their governance of two year colleges. We assume the centrally governed states can move innovations to scale more easily than states where governance is more fragmented.

Based on governance we would give preferences to:

Indiana
Virginia
Rhode Island

Of the remaining twenty-four, seven are preferred because they also track employment in-field:

Florida
Georgia
Kentucky
Nevada
North Carolina
Oregon
Virginia

Of these seven, all have relatively robust data on K12, postsecondary education, and workforce elements. Of these seven, North Carolina, Oregon, and Virginia have relatively weak data on K12. This leaves four primary states:

Florida
Georgia
Kentucky
Nevada

In addition to these four states, Texas, North Carolina, North Dakota, and Ohio, Maryland, and Virginia are also suitable for inclusion based on their long history and engagement with these systems. Texas has

a longstanding statutorily-authorized follow-up system that links education and workforce program records to unemployment (UI) wage records.[7] North Carolina's Labor Agency has a long-standing statutory obligation to produce annual performance reports for workforce preparation programs. North Dakota's university system operates a fairly thorough statutorily-authorized system which links postsecondary data and workforce program data to UI data. It has been in operation for more than 10 years. The relations between their regents and their labor agency are quite strong. Ohio's Board of Regents has had a long-standing operation (or used to) that produced annual performance reports for community colleges and universities that included UI-derived performance metrics for graduating students. Finally, both Maryland and Virginia have similar arrangements.

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[7] Chris King at the Marshal Center at UT Austin uses this data extensively for analysis and reporting – as does the Texas Workforce Commission. Rich Froeschelle leads much of this research.

Information in State Postsecondary Data Systems, by State

State	At Least one data system that links postsecondary transcript data to wage records	Track employment in field	Institutional Coverage*				Plans to collect from other institution types	Year Received Federal SLDS Funds
			Public, 4-year	Public, 2-year	Nonprofit private	For-profit (proprietary)		
Alaska	Yes	No	Yes	Yes	No	No	No	FY06
California	Yes	No	Yes	Yes	No	No	No	FY06, FY09
Florida	Yes	Yes	Yes	Yes	No	No	No	FY06, FY09, FY09[ARRA]
Georgia	Yes	Yes	Yes	Yes	No	No	No	FY09
Indiana	Yes	No	Yes	Yes	No	No	Yes	FY07
Kansas	Yes	No	Yes	Yes	No	Yes	No	FY07, FY09, FY09[ARRA]
Kentucky	Yes	Yes	Yes	Yes	Yes	No	No	FY06, FY09
Maine†	Yes	No	Yes	No	No	No	No	FY07, FY09[ARRA]
Maryland	Yes	No	Yes	Yes	Yes	No	No	FY06, FY09
Minnesota	Yes	No	Yes	Yes	No	No	N/A	FY06, FY09[ARRA]
Mississippi†	Yes	?	Yes	No	No	No	No	FY09, FY09[ARRA]
Missouri	Yes	No	Yes	Yes	No	Yes	Yes	FY09
Montana	Yes	No	Yes	Yes	No	No	No	FY09
Nevada	Yes	Yes	Yes	Yes	No	No	No	FY07
New Mexico	Yes	No	Yes	Yes	Yes	No	Yes	N/A
North Carolina	Yes	Yes	No	Yes	No	No	No	FY07
North Dakota†	Yes	N/A	Yes	Yes	No	No	No	FY09
Ohio	Yes	No	Yes	Yes	No	No	No	FY06, FY09, FY09[ARRA]
Oklahoma	Yes	No	Yes	Yes	Yes	No	Yes	N/A
Oregon	Yes	Yes	No	Yes	No	No	No	FY07, FY09, FY09[ARRA]
Rhode Island	Yes	No	Yes	Yes	No	No	No	FY09
Texas	Yes	No	Yes	Yes	Yes	Yes	N/A	FY09, FY09[ARRA]
Utah	Yes	No	Yes	Yes	No	No	Yes	FY07, FY09[ARRA]
Virginia	Yes	Yes	Yes	Yes	Yes	No	No	FY07, FY09[ARRA]
Washington	Yes	No	Yes	Yes	No	No	No	FY09, FY09[ARRA]
West Virginia	Yes	No	Yes	Yes	No	No	No	N/A

Alabama	No	N/A	Yes	Yes	Yes	No	Yes	N/A
Arizona	No	N/A	Yes	Yes	No	No	No	FY07
Arkansas	No	N/A	Yes	Yes	Yes	No	No	FY09, FY09[ARRA]
Colorado	No	N/A	Yes	Yes	Yes	No	No	FY07, FY09[ARRA]
Connecticut	No	N/A	Yes	Yes	No	No	No	FY09
District of Columbia	No	N/A	Yes	Yes	Yes	No	No	FY07
Hawaii	No	N/A	Yes	Yes	No	No	No	FY09
Illinois	No	N/A	Yes	Yes	Yes	No	Yes	FY09, FY09[ARRA]
Louisiana	No	N/A	Yes	Yes	Yes	No	No	FY09
Massachusetts	No	N/A	Yes	Yes	Yes	Yes	N/A	FY09, FY09[ARRA]
New Jersey	No	N/A	Yes	Yes	Yes	No	Yes	N/A
New York	No	N/A	Yes	Yes	Yes	Yes	N/A	FY09, FY09[ARRA]
Pennsylvania	No	N/A	Yes	Yes	Yes	No	Yes	FY06, FY09, FY09[ARRA]
South Carolina	No	N/A	Yes	Yes	Yes	Yes	N/A	FY06, FY09[ARRA]
South Dakota	No	N/A	Yes	No	No	No	No	N/A
Tennessee	No	N/A	Yes	Yes	Yes	No	No	FY06
Vermont	No	N/A	Yes	Yes	No	No	No	N/A
Wisconsin	No	N/A	Yes	Yes	No	No	No	FY06, FY09, FY09[ARRA]
Wyoming	No	N/A	Yes	Yes	No	No	Yes	N/A

*Many states have more than one SUR system; California, for example, has five, Minnesota has two, Washington has three. However, for those states in which at least one SUR system links workforce data, institutional coverage denotes institutions covered *only* within the system that tracks workforce data, not institutions covered by all SUR systems.

†Proposed collection of workforce data. Received SLDS grant to do so.

Appendix C2: Data elements collected by current transcript data systems:

Postsecondary elements

Demographic
Student name
Date of birth
Gender
Race/ethnicity
Social Security Number
K12 Identification number
Institutional identification number
Citizenship
State residency status

Postsecondary academic history
Admissions scores
Placement scores
Prior college(s) attended
Transfer credits

Enrollment Status
Degree-seeking status
Attendance status (full/part time)
1st term of academic history
Program/major

Financial Aid
Dependency status
Family income
Federal financial aid
State financial aid
Institutional financial aid
Other financial aid
Merit-based financial aid
Need-based financial aid
FAFSA fields

Academic activity
Course title
Course mode of instruction
Course grade
Term student credit hours (SCH)
Term SCH earned
Degree awarded
Degree date
Cumulative SCH earned
Cumulative GPA

K12 elements

Demographic
Student free and reduced-price lunch eligibility
language spoken at home
Disability status

High School Background
High school attended
District/school code
Student resident county-district code

Academic Activity
Date student enrolled
Course type
Course title
Course grade
High school GPA
High school graduation date
assessment scores

Labor/Workforce Elements
Employer ID number
Employer size (# of employees monthly)
Employer county
Wages earned
Wage type code
Hours worked
Employment quarter code
Employment year
Date student/employee applied for unemployment
    insurance (UI)
Date student received first UI check
Other agencies providing services to student while
    student is receiving UI
US Census North American Industry Classification
    System (NAICS) code
US Census NAICS title
US Department of Labor Standard Occupational
    Classification (SOC) code
US Department of Labor SOC title